



BIO/WEST, Inc.

1063 West 1400 North
Logan, Utah 84321
(801) 752-4202

NOT REFERENCED
BUT SUPPORT MTL. FOR
CORPS OF ENGINEERS

ITEM 4 of 4

April 12, 1991

Ken Glauser
Chief Engineer
Great Salt Lake Minerals and Chemical Corporation
P.O. Box 1190
Ogden, UT 84402

RECEIVED

JUL 05 1991

DIVISION OF
OIL GAS & MINING

Dear Mr. Glauser:

Enclosed are two copies of the final report of an evaluation of the wildlife resources and potential wildlife concerns and/or conflicts that could potentially occur in regards to Great Salt Lake Minerals' proposed evaporation pond and brine delivery system on the west side of the Great Salt Lake.

I have forwarded two copies to Anthony Vigil of the Army Corps of Engineers for their use in preparing the necessary 404 permit and the attendant environmental assessment.

Hopefully, this report will facilitate your permit application process. I appreciate the opportunity to serve Great Salt Lake Minerals in this capacity, and look forward to providing any additional environmental assistance your company requires.

We will send an itemized invoice for our services to date by the end of this month.

If you have any questions, Mr. Glauser, please feel free to call me. It was a pleasure meeting and working with you and Mr. Behrends.

Respectfully,

S. Blaise Chanson
Senior Environmental Analyst

Enclosures



**WILDLIFE CONCERNS
for
GREAT SALT LAKE MINERAL AND CHEMICAL CORPORATION'S
CLYMER BAY EVAPORATION POND**

**Prepared for
Great Salt Lake Minerals and Chemical Corporation
Ogden, Utah**

**Submitted to
U.S. Army Corps of Engineers
Sacramento District
Salt Lake Area Office
Salt Lake City, Utah**

**Prepared by
S. Blaise Chanson
BIO/WEST, Inc.
1063 West 1400 North
Logan, Utah 84321**

April 11, 1991

Introduction. A meeting held by the Army Corps of Engineers (COE) at the Salt Lake Area Office on 10 April 1991 to discuss, among other items, the potential concerns various state and federal agencies had regarding wildlife resources within the vicinity of Great Salt Lake Mineral and Chemical Corporation's (GSLM) evaporation pond project. In addition to representatives of various state regulatory agencies, the meeting was attended by representatives of the U.S. Fish and Wildlife Service (USFWS), Bureau of Land Management (BLM) and Utah Division of Wildlife Resources (UDWR). When specifically asked what wildlife issues needed to be addressed, only one concern was stated, and this was made by the UDWR representative. This concern was the potential disturbance to the American White Pelican that colonially nests on Gunnison Island. The COE moderator also expressed an interest in potential conflict with Snowy Plovers feeding or nesting within the project area. This report addresses the stated concerns and provides information on the disposition of important wildlife resources within the general project area.

American White Pelican. Gunnison Island is the only White Pelican nesting location in Utah (Flannery 1988). Paul (pers. comm.) believes this colony is the most productive and viable breeding colony in the Intermountain West, with between 5,000 to 10,000 breeding adults annually present and a record high of greater than 16,000 birds during 1987. This latter population high was probably in response to less saline conditions at the margins of the lake that permitted increases in fish production, the primary forage for White Pelicans (Flannery 1988). Flannery (1988) states that 3,000 to 6,000 adults appear to be the average annual breeding population on the island.

Gunnison Island is approximately 1 mile long by 0.5 miles wide oriented on a north-south axis. Pelicans nest primarily on the sandy bays on the east and west side of the island (Flannery 1988). As such, the birds nesting on the west side would be the only ones in a direct line of sight to the potential disturbance area (dike construction). This line of sight distance is greater than 5 miles. This distance should provide more than sufficient buffer for nesting pelicans. McEneaney (pers. comm.) stated that a 1/4-mile buffer around the nesting island located on Yellowstone Lake, Yellowstone National Park, is adequate protection from disturbance to local nesting pelicans. McEneaney stated that a 1/2-mile buffer would be optimum. The colony at Yellowstone Lake is subject to harassment from recreational boaters and tourists. The State of Utah has provided Gunnison Island with a 1-mile protection buffer from activity, which is primarily commercial shrimpers.

White Pelicans traditionally forage within the freshwater wetlands around the north and east perimeter of Bear River Bay (Flannery 1988). Locomotive Springs is the closest known foraging area to the project site, and this location is not used extensively by the pelicans (Flannery 1988). Consequently, all foraging flight patterns are to the north, northeast and east from Gunnison Island, and not south or west over the proposed area of disturbance.

Construction is contemplated to begin at the end of June and continue to April, 1992. As such, any activity will take place after the majority of chicks have hatched and reached a mid fledgling stage of development. McEneaney (pers. comm.) believes that the critical time to avoid direct harassment of nesting pelicans is between incubation and the young chick stage. There is a possibility that severe winter weather could result in an extension of dike construction activities into May and dredging activities into August. Even under this unforeseen scenario, the distance between activities and nesting birds would preclude nest abandonment, since no direct harassment of nesting birds would occur.

Based on the extensive buffering zone between the nesting colony and the construction area, lack of contact between foraging birds and construction, and timing of construction, no impact to White Pelicans is anticipated during the construction phase of this project.

Once completed, the operational activities associated with the project will be minimal. Only one employee will be present on a continual basis. Access to the dike will be restricted and activities will be limited to normal maintenance operations. GSLM does plan on providing access along the dike to the lake for commercial shrimpers. However, based on the existing commercial shrimping restrictions within the vicinity of Gunnison Island, no undue disturbance to nesting pelicans would occur because of project operations. Dike location will not provide any direct or indirect access to Gunnison Island for unauthorized personnel. Nor will the dike provide a potential access route for mammalian predators to the island. If the lake level recedes to the point where direct access from the dike to the island is possible (at approximately 4,193 feet elevation), land access to the island would exist along the entire west shoreline. Thus, mammalian (and human) access under this scenario would not be facilitated by the dike. In fact, operational activities and restriction of unauthorized personnel to the area would decrease the likelihood of human disturbance during such a low water level scenario.

Snowy Plovers. The Snowy Plover is a federal candidate category 2 for listing as threatened or endangered. The candidate status is because little is known of population levels or use of breeding habitat. Breeding habitat for inland populations of this species include bare to sparsely-vegetated substrates of high salinity or alkalinity (Herman et al. 1988). Prior to 1988, little information was available on snowy plover numbers within Utah. Since then surveys have indicated that local habitat does support a substantial breeding population of snowy plovers, and numbers appear to be increasing as lake level declines and shoreline /alkaline flats increase (Halpin and Paul 1989). Snowy Plover distribution occurs around the Great Salt Lake perimeter (Figure 1). However densities vary with the highest concentrations at Locomotive Springs, Slat Wells and Stansbury Island (Halpin and Paul 1989). The closest known breeding population to the project area is in the vicinity of Crocodile Mountain, which is approximately 23 miles north of the project area (Figure 1). Paul (pers. comm.) stated that the population at this site was stable and not limited.

Snowy Plovers congregate during staging and migration within the Great Salt Lake area. Numbers exceeding 100 individuals have been observed in late August and September along the Great Salt Lake shoreline, primarily on the east side of the lake and on Stansbury Island (Halpin and Paul 1989).

Snowy Plovers primarily rely on brine flies when feeding at the water's edge, although they do eat beetles on alkaline flats (Halpin and Paul 1989).

Project construction activities are not anticipated to affect Snowy Plovers for the following reasons:

1. No known breeding population is known to occur at the project site. Even if birds do nest on the flats of Clymer Bay, dike construction would not affect shoreline lake levels, nor would construction equipment intrude on potential nesting habitat.
2. The population status of Snowy Plovers in available habitat of the Great Salt Lake is in good shape, and is probably increasing.

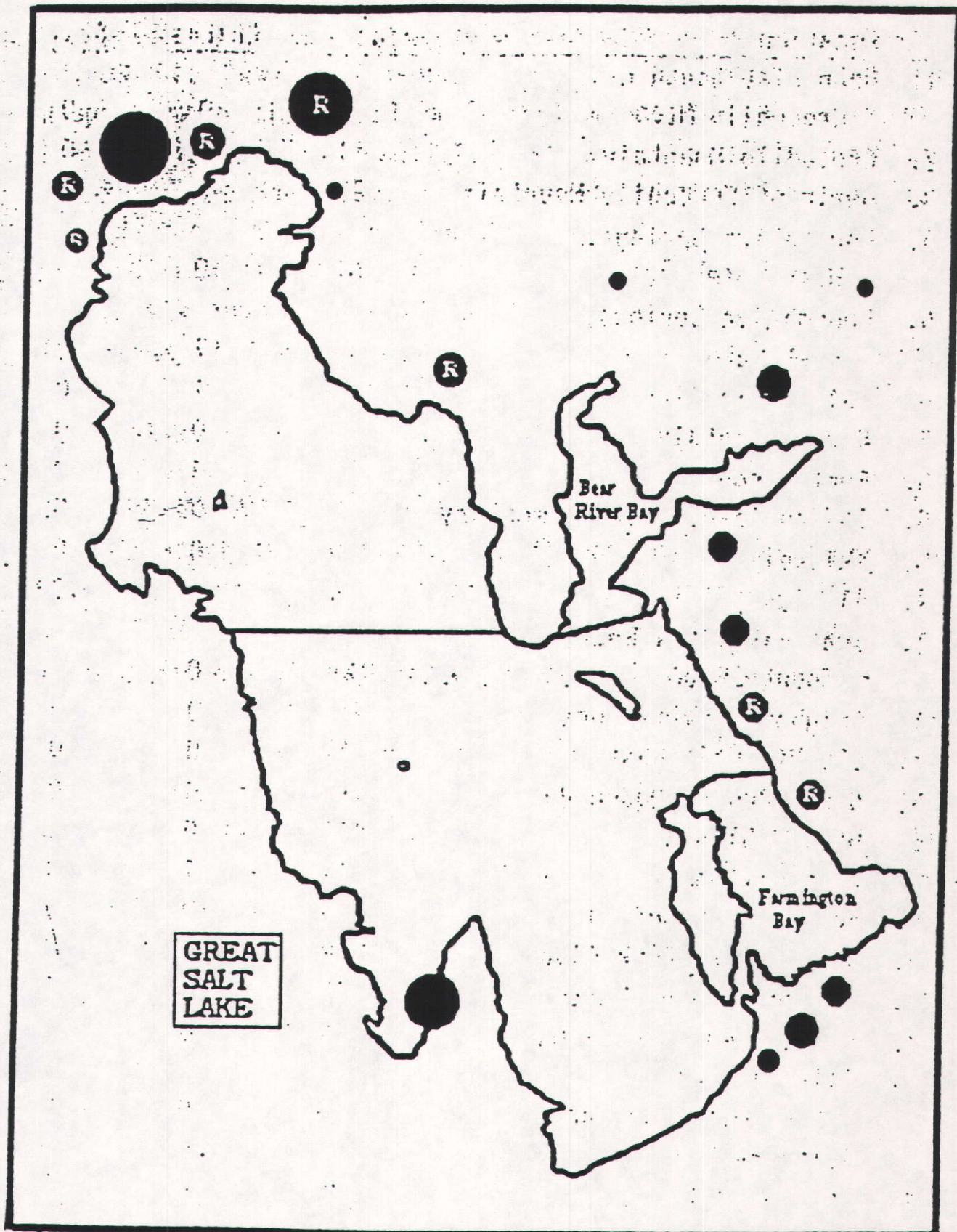


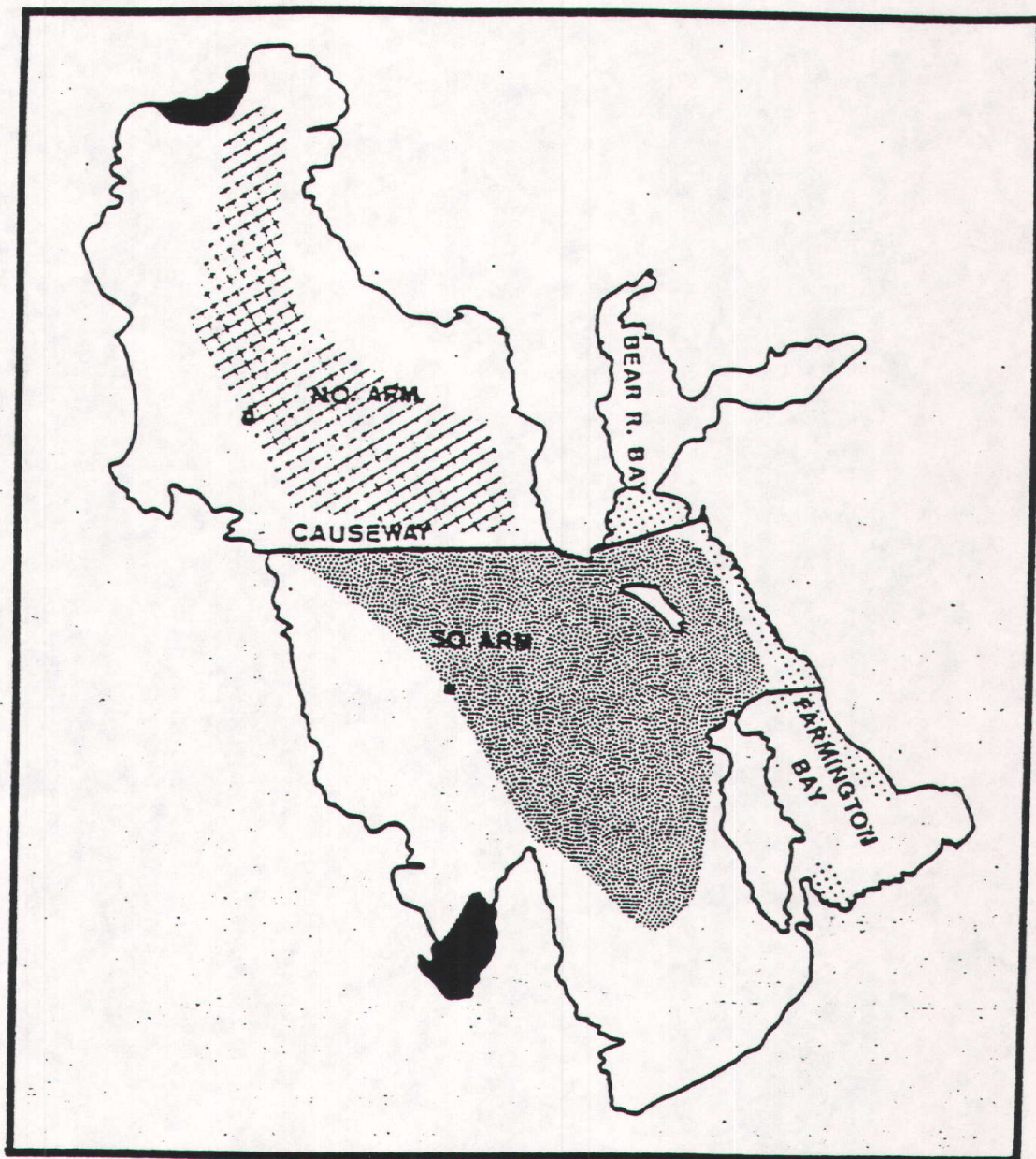
Figure 1. Snowy Plover occurrence at Great Salt Lake survey sites, June 3-9, 1988. Circles indicate the presence of Snowy Plovers. Size of the circles represents the relative numbers of Snowy Plovers. "R" indicates documented

3. No known staging areas exist within the project vicinity.
4. Project activities are not anticipated to disrupt brine concentrations within the lake, and no affect to brine fly (primary food source for the plover) would occur.

Other Shorebirds and Water Related Birds. The Great Salt Lake has been nominated for inclusion in the Western Hemisphere Shorebird Reserve Network (WHSRN) by UDWR, BLM and USFWS (Halpin 1989). The area's qualifications have been reviewed and accepted by the WHSRN Council. Hemispheric sites host shorebird numbers either in excess of 250,000 birds over the course of a year, or greater than 30 percent of a flyway's population of a particular species (Halpin 1989). Paul (pers. comm.) states that shorebirds historically utilized the east side of the Great Salt Lake, and that the North Arm was probably never very important to their status during migration and breeding seasons. Shorebirds, such as American Avocets and Black-necked Stilts are ground nesters associated with freshwater wetland habitats around the lake (Paul 1988). No such habitat exists within the project area. Other Colonial nesters such as herons, night-herons, egrets, cormorants and ibis are associated with emergent vegetation or trees along the perimeter of the lake (Paul 1988). Again, neither habitat type occurs within the project area. Project activities would not affect the water level of the lake and thus would not even indirectly affect these freshwater habitats.

Eared Grebes, Wilson's Phalarope and Red-necked Phalarope utilize the Great Salt Lake extensively during migration, especially autumn migration (Paul 1988). Phalaropes occur most commonly from July through October, and Eared Grebes from September into December (Paul 1988). Brine shrimp or brine flies and freshwater are the major attractants for these species (Paul 1988). In fact, no bird species relies so completely on brine shrimp as does the Eared Grebe (Paul 1988). Surveys of these birds conducted by the UDWR indicate that they tend to concentrate where the appropriate relationship between food sources and freshwater exist. Figure 2 depicts these population distributions during 1982 when the lake elevation was approximately 4,200 feet, and during 1987 when the lake level was approximately 4,210 feet. As can be seen distribution and occurrence of these species varies with the changing lake conditions, but at no time, were concentrations of these species present within the project area. Survey information indicates that in 1983 when the lake level was at approximately 4,202 (similar to current levels), Wilson' Phalaropes were located near the east side of the South Arm of the Lake including the immediate vicinity of GSLM property (Paul 1988). During this water surface elevational period, Red-necked phalaropes also concentrated in the area south of GSLM property (Paul 1988). These results indicate that the phalarope species do not avoid feeding in the general area of brine evaporation and processing. The closest population of migrating grebes occurs immediately south of the Southern Pacific causeway in a small bay at the northeast end of the Lakeside Mountains (Paul pers. comm.). This location is greater than 3 miles south of the project site, and adjacent to any disturbance generated by railroad activities, again demonstrating no avoidance due to human activities. Based on this information, no affect to other water-related bird species is anticipated to occur due to project activities.

Listed threatened or endangered species. Two listed species potentially occur within the general area: Peregrine Falcon and Bald Eagle. The closest known nesting site for Peregrine Falcons is at Timpie Waterfowl Management Area, which is greater than 30 miles south of the project area (Benton pers. comm.). As such, the project area is outside the defined hunting range of the nest site (USFWS 1984). Even if the project area did occur within the hunting range of an unidentified pair or individual Peregrine Falcon, the avian prey base used by these falcons does not exist at the project site. Bald Eagles winter within the State of Utah, and a wintering population of 100-200 eagles







-  = 1982, morning concentrations of Wilson's Phalaropes
-  = 1987, morning concentrations of Wilson's Phalaropes
-  = 1982, morning concentrations of Eared Grebes
-  = 1987, morning concentrations of Eared Grebes

Figure 2. Distribution of Wilson's Phalaropes and Eared Grebes on the Great Salt Lake at different lake elevations and brine concentrations. These patterns reflect relationships between the distribution of brine flies, phalaropes, and freshwater influence.

occurs within the valleys of north-central Utah (Edwards 1969). The majority of these birds are located in southern Rush Valley and Skull Valley between October and February where their principal food source is black-tailed jackrabbits (Sabine 1986). These wintering areas are greater than 80 miles south of the project area. Benton (pers. comm.) confirmed that no known Bald Eagle use occurs within the immediate project area.

Site Visit Information. On 5 April 1991, an aerial reconnaissance of the general area was conducted by BIO/WEST biologists. A summary report of this reconnaissance is attached as Appendix A of this report. Little avian activity and no mammalian activity was observed at the project area (Clymer Bay). The only species of interest noted at the project site was 5 pelicans in flight. Avian concentrations were observed more in relation to the fresh water of Locomotive Springs; while two concentrations (> 300 individuals) of phalaropes were observed at Spring Bay at the extreme north end of the lake, immediately west of Locomotive Springs, and at Rozel Bay on the west side of Promontory. Both of these locations are greater than 20 miles from the project site.

A ground visit was conducted on 9 April 1991. During this visit, no shorebird or other water-related bird activity was noted at the project site. Horned Larks were the only species seen at the project site. On the way to the site, American Avocets, Black-necked Stilts and one long-billed curlew was observed in the vicinity of Locomotive Springs. Numerous waterfowl were also noted in the vicinity of Locomotive Springs. These sightings confirm the necessity of freshwater access for these water-related species.

The only sightings of interest noted within the general project area was a pair of soaring adult golden eagles in the vicinity of a known nest site approximately 8 miles north of Clymer Bay at the south end of the Hogup Mountains. An adult ferruginous hawk was also noted hunting over the desert scrub steppe immediately south of Hogup Mountains. It is likely that these birds nest in this area at the south end of the Hogup Mountains, but the distance of greater than 8 miles precludes disturbance to nesting individuals.

References Cited

- Benton, R. Endangered Species Biologist, U.S. Fish and Wildlife Service, Utah State Office, Salt Lake, Utah. Telephone conversation with B. Chanson, BIO/WEST, Inc. 5 April 1991.
- Edwards, C. 1969. Winter behavior and population dynamics of American eagles in western Utah. Ph.D. Dissertation. Department of Zoology, Brigham Young University, Provo, Utah.
- Flannery, A. 1988. American White Pelicans in northern Utah. *Utah Birds*. Vol 4: 11-20.
- Halpin, M. 1989. Great Salt Lake nomination for inclusion in the Western Hemisphere Shorebird Reserve Network. *Utah Birds* 5(2): 46-47.
- Halpin, M. and D. Paul. 1989. Survey of Snowy Plovers in northern Utah - 1988. *Utah Birds* 5(2): 21-32.
- Herman, S., J. Bulger, and J. Buchanan. 1988. The Snowy Plover in southeastern Oregon and western Nevada. *J. Field Ornithol.* 59(1): 13-21.
- McEneany, T. Avian Biologist, National Park Service, Yellowstone National Park, Wyoming. Telephone Conversation with B. Chanson, BIO/WEST, Inc. 4 April 1991.
- Paul, D. 1988. Contemporary birdlife of the Great Salt Lake. *Utah Birds*. Vol.4: 32-43.
- Paul, D. Nongame Biologist, Utah Division of Wildlife Resources, Northern Region, Ogden, Utah. Telephone conversation with B. Chanson, BIO/WEST, Inc. 4 April 1991.
- Sabine, N. 1986. Bald Eagle behavior and habitat use in north-central Utah. Unpublished Ph.D. Dissertation. Department of Zoology, Brigham Young University, Provo, Utah.
- USFWS 1984. American Peregrine Falcon Recovery Plan (Rocky Mountain/Southwest population, dated December 14, 1984. Prepared by the U.S. Fish and Wildlife Service in cooperation with the American Peregrine Falcon Recovery Team. USFWS, Denver, Colorado. 104pp.

APPENDIX A

Aerial Reconnaissance Survey Report

To: Blaise Chanson
From: Glen Gantz, Wildlife Ecologist
Date: April 11, 1991
Subject: Great Salt Lake Mineral aerial wildlife survey

On April 4, 1991, Glen Gantz, Brent Colledge, and Karl Launchbough flew to the proposed site of the evaporation pond. We departed Logan at 11:51 am, with clear skies and light breeze. We flew directly to the site and began looking for wildlife on the proposed site. The following wildlife species were observed in and around Clymer Bay, the site of the expansion project. Number seen is in parenthesis.

American White Pelicans (5) (in flight)
Gull (1) Common Raven (2)
Horned Lark (approx. 15)
Unknown medium sized bird (1) (possible American kestrel)
No animal or bird tracks were observed in the area.

After flying around Clymer Bay we proceeded north along the west shore of the Great Salt Lake. No wildlife was observed between Clymer Bay and Locomotive Springs. The fresh water ponds at locomotive springs contained the following wildlife.

Canada Geese (15+)	Mallards (2+)
Teal (2+)	American White Pelicans (3)
Swans (2)	Cattle Egrets (2)
Common Ravens (2)	Phalaropes (few)
Unknown flock of passerines (approx 25)	

We proceeded east along the north shore of the lake. In the northeast corner of Spring Bay we observed a flock of 300+ wilson Phalaropes. We proceeded south along the west side of the Promontory mountains to Rozel Bay. There we observed two flocks of Wilson's Phalaropes, one flock with 40+ individuals and another with approx. 350. We continued south and observed numerous gulls, Approx. 500+.

The flight lasted 2.6 hours.